



OIEP

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/963,875

DATE: 02/07/2002
TIME: 13:27:56

Input Set : A:\EP.txt
Output Set : N:\CRF3\02072002\I963875.raw

ENTERED

3 <110> APPLICANT: Massachusetts General Hospital
5 <120> TITLE OF INVENTION: Stem Cells of the Islets of Langerhans and Their Use in Treating Diabetes

6 Mellitus
8 <130> FILE REFERENCE: 17633/1235
C--> 10 <140> CURRENT APPLICATION NUMBER: US/09/963,875
11 <141> CURRENT FILING DATE: 2001-09-26
13 <150> PRIOR APPLICATION NUMBER: US60/169082
14 <151> PRIOR FILING DATE: 1999-12-06
16 <150> PRIOR APPLICATION NUMBER: US 60/215109
17 <151> PRIOR FILING DATE: 2000-06-28
19 <150> PRIOR APPLICATION NUMBER: US 60/238880
20 <151> PRIOR FILING DATE: 2000-10-06
22 <150> PRIOR APPLICATION NUMBER: US 09/731261
23 <151> PRIOR FILING DATE: 2000-12-06
25 <160> NUMBER OF SEQ ID NOS: 58
27 <170> SOFTWARE: Patentin version 3.1
29 <210> SEQ ID NO: 1
30 <211> LENGTH: 1618
31 <212> TYPE: PRT
32 <213> ORGANISM: Homo sapiens
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37 1 5 10 15
40 Arg Arg Leu Glu Ala Tyr Leu Gly Arg Val Lys Ala Leu Glu Glu Gln
41 20 25 30
44 Asn Glu Leu Leu Ser Ala Gly Leu Gly Gly Leu Arg Arg Gln Ser Ala
45 35 40 45
48 Asp Thr Ser Trp Arg Ala His Ala Asp Asp Glu Leu Ala Ala Leu Arg
49 50 55 60
52 Ala Leu Val Asp Gln Arg Trp Arg Glu Lys His Ala Ala Glu Val Ala
53 65 70 75 80
56 Arg Asp Asn Leu Ala Glu Glu Leu Glu Gly Val Ala Gly Arg Cys Glu
57 85 90 95
60 Gln Leu Arg Leu Ala Arg Glu Arg Thr Thr Glu Glu Val Ala Arg Asn
61 100 105 110
64 Arg Arg Ala Val Glu Ala Glu Lys Cys Ala Arg Ala Trp Leu Ser Ser
65 115 120 125
68 Gln Gly Ala Glu Leu Glu Arg Glu Leu Glu Ala Leu Arg Val Ala His
69 130 135 140
72 Glu Glu Glu Arg Val Gly Leu Asn Ala Gln Ala Ala Cys Ala Pro Arg
73 145 150 155 160
76 Leu Pro Ala Pro Pro Arg Pro Pro Ala Pro Glu Val Glu Glu
77 165 170 175

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80 Leu Ala Arg Arg Leu Gly Glu Ala Trp Arg Gly Ala Val Arg Gly Tyr
81      180      185      190
84 Gln Glu Arg Val Ala His Met Glu Thr Ser Leu Asp Gln Thr Arg Glu
85      195      200      205
88 Arg Leu Ala Arg Ala Val Gln Gly Ala Arg Glu Val Arg Leu Glu Leu
89      210      215      220
92 Gln Gln Leu Gln Ala Glu Arg Gly Gly Leu Leu Glu Arg Arg Ala Ala
93 225      230      235      240
96 Leu Glu Gln Arg Leu Glu Gly Arg Trp Gln Glu Arg Leu Arg Ala Thr
97      245      250      255
100 Glu Lys Phe Gln Leu Ala Val Glu Ala Leu Glu Gln Glu Lys Gln Gly
101      260      265      270
104 Leu Gln Ser Gln Ile Ala Gln Val Leu Glu Gly Arg Gln Gln Leu Ala
105      275      280      285
108 His Leu Lys Met Ser Leu Ser Leu Glu Val Ala Thr Tyr Arg Thr Leu
109      290      295      300
112 Leu Glu Ala Glu Asn Ser Arg Leu Gln Thr Pro Gly Gly Gly Ser Lys
113 305      310      315      320
116 Thr Ser Leu Ser Phe Gln Asp Pro Lys Leu Glu Leu Gln Phe Pro Arg
117      325      330      335
120 Thr Pro Glu Gly Arg Arg Leu Gly Ser Leu Leu Pro Val Leu Ser Pro
121      340      345      350
124 Thr Ser Leu Pro Ser Pro Leu Pro Ala Thr Leu Glu Thr Pro Val Pro
125      355      360      365
128 Ala Phe Leu Lys Asn Gln Glu Phe Leu Gln Ala Arg Thr Pro Thr Leu
129      370      375      380
132 Ala Ser Thr Pro Ile Pro Pro Thr Pro Gln Ala Pro Ser Pro Ala Val
133 385      390      395      400
136 Asp Ala Glu Ile Arg Ala Gln Asp Ala Pro Leu Ser Leu Leu Gln Thr
137      405      410      415
140 Gln Gly Gly Arg Lys Gln Ala Pro Glu Pro Leu Arg Ala Glu Ala Arg
141      420      425      430
144 Val Ala Ile Pro Ala Ser Val Leu Pro Gly Pro Glu Glu Pro Gly Gly
145      435      440      445
148 Gln Arg Gln Glu Ala Ser Thr Gly Gln Ser Pro Glu Asp His Ala Ser
149      450      455      460
152 Leu Ala Pro Pro Leu Ser Pro Asp His Ser Ser Leu Glu Ala Lys Asp
153 465      470      475      480
156 Gly Glu Ser Gly Gly Ser Arg Val Phe Ser Ile Cys Arg Gly Glu Gly
157      485      490      495
160 Glu Gly Gln Ile Trp Gly Leu Val Glu Lys Glu Thr Ala Ile Glu Gly
161      500      505      510
164 Lys Val Val Ser Ser Leu Gln Gln Glu Ile Trp Glu Glu Glu Asp Leu
165      515      520      525
168 Asn Arg Lys Glu Ile Gln Asp Ser Gln Val Pro Leu Glu Lys Glu Thr
169      530      535      540
172 Leu Lys Ser Leu Gly Glu Glu Ile Gln Glu Ser Leu Lys Thr Leu Glu
173 545      550      555      560
176 Asn Gln Ser His Glu Thr Leu Glu Arg Glu Asn Gln Glu Cys Pro Arg

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177          565          570          575
180 Ser Leu Glu Glu Asp Leu Glu Thr Leu Lys Ser Leu Glu Lys Glu Asn
181          580          585          590
184 Lys Arg Ala Ile Lys Gly Cys Gly Gly Ser Glu Thr Ser Arg Lys Arg
185          595          600          605
188 Gly Cys Arg Gln Leu Lys Pro Thr Gly Lys Glu Asp Thr Gln Thr Leu
189          610          615          620
192 Gln Ser Leu Gln Lys Glu Asn Gln Glu Leu Met Lys Ser Leu Glu Gly
193 625          630          635          640
196 Asn Leu Glu Thr Phe Leu Phe Pro Gly Thr Glu Asn Gln Glu Leu Val
197          645          650          655
200 Ser Ser Leu Gln Glu Asn Leu Glu Ser Leu Thr Ala Leu Glu Lys Glu
201          660          665          670
204 Asn Gln Glu Pro Leu Arg Ser Pro Glu Val Gly Asp Glu Glu Ala Leu
205          675          680          685
208 Arg Pro Leu Thr Lys Glu Asn Gln Glu Pro Leu Arg Ser Leu Glu Asp
209          690          695          700
212 Glu Asn Lys Glu Ala Phe Arg Ser Leu Glu Lys Glu Asn Gln Glu Pro
213 705          710          715          720
216 Leu Lys Thr Leu Glu Glu Glu Asp Gln Ser Ile Val Arg Pro Leu Glu
217          725          730          735
220 Thr Glu Asn His Lys Ser Leu Arg Ser Leu Glu Glu Gln Asp Gln Glu
221          740          745          750
224 Thr Leu Arg Thr Leu Glu Lys Glu Thr Gln Gln Arg Arg Ser Leu
225          755          760          765
228 Gly Glu Gln Asp Gln Met Thr Leu Arg Pro Pro Glu Lys Val Asp Leu
229          770          775          780
232 Glu Pro Leu Lys Ser Leu Asp Gln Glu Ile Ala Arg Pro Leu Glu Asn
233 785          790          795          800
236 Glu Asn Gln Glu Phe Leu Lys Ser Leu Lys Glu Glu Ser Val Glu Ala
237          805          810          815
240 Val Lys Ser Leu Glu Thr Glu Ile Leu Glu Ser Leu Lys Ser Ala Gly
241          820          825          830
244 Gln Glu Asn Leu Glu Thr Leu Lys Ser Pro Glu Thr Gln Ala Pro Leu
245          835          840          845
248 Trp Thr Pro Glu Glu Ile Asn Lys Ser Gly Gly Asn Glu Ser Ser Arg
249          850          855          860
252 Lys Gly Asn Ser Arg Thr Thr Gly Val Cys Gly Ser Glu Pro Arg Asp
253 865          870          875          880
256 Ile Gln Thr Pro Gly Arg Gly Glu Ser Gly Ile Ile Glu Ile Ser Gly
257          885          890          895
260 Ser Met Glu Pro Gly Glu Phe Glu Ile Ser Arg Gly Val Asp Lys Glu
261          900          905          910
264 Ser Gln Arg Asn Leu Glu Glu Glu Glu Asn Leu Gly Lys Gly Glu Trp
265          915          920          925
268 Gln Glu Ser Leu Arg Ser Leu Glu Glu Glu Gly Gln Glu Leu Pro Gln
269          930          935          940
272 Ser Ala Asp Val Gln Arg Trp Glu Asp Thr Val Glu Lys Asp Gln Glu
273 945          950          955          960

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276 Leu Ala Gln Glu Ser Pro Pro Gly Met Ala Gly Val Glu Asn Lys Asp
277          965          970          975
280 Glu Ala Glu Leu Asn Leu Arg Glu Gln Asp Gly Phe Thr Gly Lys Glu
281          980          985          990
284 Glu Val Val Glu Gln Gly Glu Leu Asn Ala Thr Glu Glu Val Trp Phe
285          995          1000          1005
288 Pro Gly Glu Gly His Pro Glu Asn Pro Glu Pro Lys Glu Gln Arg
289          1010          1015          1020
292 Gly Leu Val Glu Gly Ala Ser Val Lys Gly Gly Ala Glu Gly Leu
293          1025          1030          1035
296 Gln Asp Pro Glu Gly Gln Ser Gln Gln Val Gly Thr Pro Gly Leu
297          1040          1045          1050
300 Gln Ala Pro Gln Gly Leu Pro Glu Ala Ile Glu Pro Leu Val Glu
301          1055          1060          1065
304 Asp Asp Val Ala Pro Gly Gly Asp Gln Ala Ser Pro Glu Val Met
305          1070          1075          1080
308 Leu Gly Ser Glu Pro Ala Met Gly Glu Ser Ala Ala Gly Ala Glu
309          1085          1090          1095
312 Pro Gly Leu Gly Gln Gly Val Gly Gly Leu Gly Asp Pro Gly His
313          1100          1105          1110
316 Leu Thr Arg Glu Glu Val Met Glu Pro Pro Leu Glu Glu Ser
317          1115          1120          1125
320 Leu Glu Ala Lys Arg Val Gln Gly Leu Glu Gly Pro Arg Lys Asp
321          1130          1135          1140
324 Leu Glu Glu Ala Gly Gly Leu Gly Thr Glu Phe Ser Glu Leu Pro
325          1145          1150          1155
328 Gly Lys Ser Arg Asp Pro Trp Glu Pro Pro Arg Glu Gly Arg Glu
329          1160          1165          1170
332 Glu Ser Glu Ala Glu Ala Pro Arg Gly Ala Glu Glu Ala Phe Pro
333          1175          1180          1185
336 Ala Glu Thr Leu Gly His Thr Gly Ser Asp Ala Pro Ser Pro Trp
337          1190          1195          1200
340 Pro Leu Gly Ser Glu Glu Ala Glu Glu Asp Val Pro Pro Val Leu
341          1205          1210          1215
344 Val Ser Pro Ser Pro Thr Tyr Thr Pro Ile Leu Glu Asp Ala Pro
345          1220          1225          1230
348 Gly Leu Gln Pro Gln Ala Glu Gly Ser Gln Glu Ala Ser Trp Gly
349          1235          1240          1245
352 Val Gln Gly Arg Ala Glu Ala Gly Lys Val Glu Ser Glu Gln Glu
353          1250          1255          1260
356 Glu Leu Gly Ser Gly Glu Ile Pro Glu Gly Leu Gln Glu Glu Gly
357          1265          1270          1275
360 Glu Glu Ser Arg Glu Glu Ser Glu Glu Asp Glu Leu Gly Glu Thr
361          1280          1285          1290
364 Leu Pro Asp Ser Thr Pro Leu Gly phe Tyr Leu Arg Ser Pro Thr
365          1295          1300          1305
368 Ser Pro Arg Trp Thr Pro Leu Glu Ser Arg Gly His Pro Leu Lys
369          1310          1315          1320
372 Glu Thr Gly Lys Glu Gly Trp Asp Pro Ala Val Leu Ala Ser Glu

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373	1325	1330	1335
376 Gly Leu	Glu Glu Pro Ser	Glu Lys Glu Glu Gly	Glu Glu Gly Glu
377	1340	1345	1350
380 Glu Glu	Cys Gly Arg Asp	Ser Asp Leu Ser Glu Glu	Phe Glu Asp
381	1355	1360	1365
384 Leu Gly	Thr Glu Ala Pro	Phe Leu Pro Gly Val	Pro Gly Glu Val
385	1370	1375	1380
388 Ala Glu	Pro Leu Gly Gln Val	Pro Gln Leu Leu Leu	Asp Pro Ala
389	1385	1390	1395
392 Ala Trp	Asp Arg Asp Gly	Glu Ser Asp Gly Phe Ala	Asp Glu Glu
393	1400	1405	1410
396 Glu Ser	Gly Glu Glu Gly	Glu Glu Asp Gln Glu Glu	Gly Arg Glu
397	1415	1420	1425
400 Pro Gly	Ala Gly Arg Trp	Gly Pro Gly Ser Ser Val	Gly Ser Leu
401	1430	1435	1440
404 Gln Ala	Leu Ser Ser Ser	Gln Arg Gly Glu Phe	Leu Glu Ser Asp
405	1445	1450	1455
408 Ser Val	Ser Val Ser Val	Pro Trp Asp Asp Ser	Leu Arg Gly Ala
409	1460	1465	1470
412 Val Ala	Gly Ala Pro Lys	Thr Ala Leu Glu Thr	Glu Ser Gln Asp
413	1475	1480	1485
416 Ser Ala	Glu Pro Ser Gly	Ser Glu Glu Glu Ser	Asp Pro Val Ser
417	1490	1495	1500
420 Leu Glu	Arg Glu Asp Lys	Val Pro Gly Pro Leu	Glu Ile Pro Ser
421	1505	1510	1515
424 Gly Met	Glu Asp Ala Gly	Pro Gly Ala Asp Ile	Ile Gly Val Asn
425	1520	1525	1530
428 Gly Gln	Gly Pro Asn Leu	Glu Gly Lys Ser Gln	His Val Asn Gly
429	1535	1540	1545
432 Gly Val	Met Asn Gly Leu	Glu Gln Ser Glu Glu	Ser Gly Ala Arg
433	1550	1555	1560
436 Asn Ala	Leu Val Ser Glu	Gly Asp Arg Gly Ser	Pro Phe Gln Glu
437	1565	1570	1575
440 Glu Glu	Gly Ser Ala Leu	Lys Arg Ser Ser Ala	Gly Ala Pro Val
441	1580	1585	1590
444 His Leu	Gly Gln Gly Gln	Phe Leu Lys Phe Thr	Gln Arg Glu Gly
445	1595	1600	1605
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449	1610	1615	
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454 <212>	TYPE: DNA		
455 <213>	ORGANISM: Homo sapiens		
457 <400>	SEQUENCE: 2		
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460 gcttacctgg	gccgggtcaa	ggcgctggag	gagcagaatg agctgctcag cgccggactc 120
462 ggggggctcc	ggcgacaatc	cgcggaacac	tcttgccggg cgcattgcga cgacgagctg 180
464 gcggccctgc	gtgcgctcgt	tgaccaacgc	tgccggggaga agcacgcggc cgaggtggcg 240
466 cgcgacaacc	tggtgaaga	gctggagggc	gtggcaggcc gatgcgagca gctgcggctg 300

VERIFICATION SUMMARY

PATENT APPLICATION: US/09/963,875

DATE: 02/07/2002

TIME: 13:27:57

Input Set : A:\EP.txt

Output Set: N:\CRF3\02072002\I963875.raw

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